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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

NETWORKFAB CORPORATION

Serial No.: 10/785,353

Filed: 2/24/2004

For: REAL-TIME Emitter LOCATING
SYSTEM AND METHOD

Examiner: Fred H. Munn

Group Art Unit: 3662

December 26, 2006

San Diego, California 92108

CUSTOMER NUMBER: 22848

AMENDMENT

Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

In response to the Office Action mailed 10/25/2006, please amend the subject application as follows:

IN THE SPECIFICATION:

1 Please amend the Abstract as follows:

2 "A Real-time Emitter Locating (EL) System and Method is disclosed. The
3 system provides a technique for taking in data sets (lines of bearing) from DF receivers
4 and characterizing those signals with their respective probabilities of error. Then using a
5 unique method, the preferred system applies a recursive processing technique to this

1 continuous stream of data, displaying transmitter positions with significantly less
2 uncertainty. Furthermore, the preferred system is able to perform these functions in real-
3 time. The system is further capable of being fully automated to reduce the processing
4 time and reduce the necessity of human intervention. Still further, in an alternative
5 embodiment of the present invention the system can be remotely controlled over a
6 communications network whereby collected locating data from a single DF set or
7 alternatively from more than one~~several~~ DF sets can be combined to arrive at estimated
8 positions for a transmitter. In this way, a far more efficient EL System can be achieved
9 in which the emitter's position can be determined more quickly from a centralized
10 command facility. This combination of data filtering and data collection techniques
11 significantly reduces measurement uncertainties and enhances the accuracy of EL
12 systems."

13 Please amend the specification at page 6, line 14 as follows:

14 "Figures 6A and 6B depicts the graphical approach employed by the present
15 invention to determine a transmitter's position point; and"

16 Please amend the specification at page 8, line 13 as follows:

17 "What is needed therefore in order to fully optimize these EL systems is (1) The
18 enhanced ability to evaluate the measurement data 20 and reduce the overall
19 uncertainties; and (2) An enhanced technique to collect the LOB data. These two things
20 are described in this diescription."

21 Please amend the specification at page 11, line 16 through page 12, line 10 as
22 follows:

1 "Figure 5 is a flow chart depicting the prior art DF method for locating a
2 transmitter. As shown, the EL system receives a stream of Line of Bearing and Quality
3 information from at least three DF sets 42A, 42B and 42C; three DF sets is generally the
4 minimum necessary in order to achieve triangulation. Next, the EL system calculates the
5 average Line of Bearing from a particular segment of each DF set 44A, 44B and 44C.
6 These averaged Lines of Bearing from each DF set to the transmitter are then plotted 46
7 to result in a conclusion by the EL system as to the transmitter's location 48. As
8 discussed above, the target problems to be resolved by the present invention is the delay
9 in arriving at the average Line of Bearing for each DF set, the lack of control and
10 understanding of the inherent error in each of the LOB averages, and also the need for
11 three or more active and high-quality DF set LOB signals in order to arrive at any sort of
12 reliable transmitter position. Figure 6A shows the fundamentals of how the present
13 approach operates.

14 Figure 6A depicts the DF set at two subsequent locations. For the purpose of
15 clarifying the geometry of the locating solution method, however, the DF set is shown as
16 stationary (relative to the transmitter location graphical solution). As a result, Figure 6A can
17 be considered to be a DF Set-centric view, wherein the DF set appears to be stationary and
18 any lines of bearing or transmitter locations are in relation (or relative to) the moving DF set.
19 In fact, the transmitter might actually be stationary in the depicted Figure 6, with all relative
20 movement being provided by the transmitter. First, PP(0) (the cross-over point) is
21 determined as discussed in the Specification previously. As the DF Set is then moved, the
22 line of bearing to the cross-over point will continue to "point" towards PP(0). When a new
23 DF Set location is reached and a new line of bearing is "drawn" to the newly-detected

1 transmission. The connecting vector, in this example, is then drawn perpendicular to the
2 latest line of bearing, through the last line of bearing or estimate position (in this case it is
3 $PP(0)$).

4 Figure 6B graphically depicts the method of the present invention (as specifically
5 described below in connection with the description associated with Figure 7), from an
6 "Earth-centric" or reference frame fixed in relation to the earth."